

# Hobbies

## WEEKLY

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**T**HIS real working model of the common domestic mangle would please a young child, both for pressing doll's clothes, and helping Mother on washing day. It is quite easy to make, but does need reasonable care in construction to ensure the rollers working easily. Little wood is necessary, as the material could well be cut from an odd length of timber, and planed to size.

Fig. 1 shows a rear view of the mangle, and a side view. A few outside dimensions are given, but all parts lettered have their exact sizes given in the cutting list, and so repetition is unnecessary. Make a start with the feet. In the centre of each, chisel out a mortise  $\frac{1}{2}$  in. long and  $\frac{1}{2}$  in. wide. To fit these cut

## A CHILD'S WORKING MODEL MANGLE

two pieces of wood  $\frac{3}{4}$  in. wide and  $\frac{1}{2}$  in. thick to the length given at (I) in Fig. 2, plus the depth of the mortise. Glue these parts in the feet, then bevel the ends down, as shown in the diagram.

Prepare the side posts (A) and nail these to the pieces of wood, glued to the

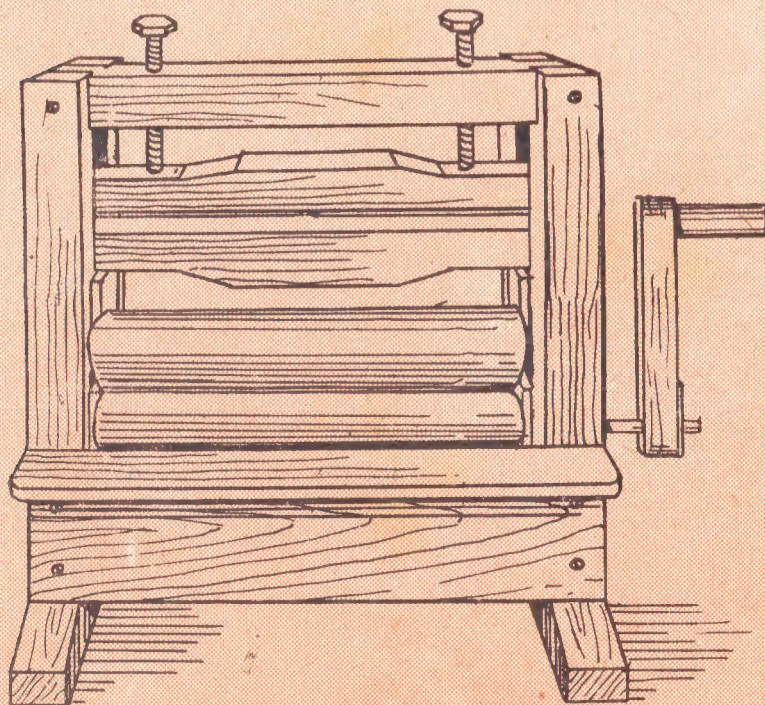
feet. Cut top crossbar (F) and reduce  $\frac{3}{4}$  in. of each end to  $\frac{1}{2}$  in., as at (J). Fit this across, between the posts, and secure the lot with a round-headed screw. In the space between each set of posts, the sliding bearing blocks, which carry the rollers, will fit.

Reference will be made to these later on. Cut the rear bar (B) and front bar (C) and reduce  $\frac{3}{4}$  in. of each end to a thickness of  $\frac{1}{2}$  in., as shown at (M) in Fig. 3. The unreduced portion must be of the length shown to fit between the posts. Bar (B) has its top edge bevelled off a little. Both are then screwed across at front and back. To bar (C) the board (D) is nailed or screwed, the outer corners of this being rounded off.

### Making the Rollers

For the rollers, a piece of 1 in. diameter round wooden rod will be needed, sawn into two 6 in. lengths. Spindles for these must be fixed at each end of the rollers, and obviously, if they are to rotate evenly, the centring must be accurately done. The better to ensure this, a jig should be made up, a sketch of which, or part of it, is given at (P) in Fig. 3. It is a simple affair made as follows.

Cut a 1 in. square of wood  $\frac{3}{4}$  in. thick, and centre it most accurately at back and front. Prick the centre with an awl, and there drill a hole through to suit the spindles. Drill this from both sides, as the hole must run straight, or the spindles will not be true. Nail 1 in. wide strips of wood to this, each side, and at about 6 in. from the wood square, nail a second piece across, also 1 in. square to





act as a stop. A piece of waste wood nailed underneath the whole will complete.

In use the rollers are placed one at a time, of course, in the jig and there held firmly, while the drill bit is inserted in the hole, and drills the hole required in the roller. Wire nails will do for the spindles. These are firmly driven in the holes and cut off, leaving pins  $\frac{1}{2}$  in. long

and in blocks (O) drill suitable spindle holes at centres  $\frac{1}{2}$  in. up from the bottom ends, then cut the holes to form slots, as seen in the drawing.

### Pressure Bars

Prepare the two pressure bars (G) and cut to shape, reducing the ends to  $\frac{1}{2}$  in. thickness. The lower bar has  $\frac{1}{2}$  in. of each end reduced another  $\frac{1}{2}$  in., leaving the parts which rest upon the bearing blocks  $\frac{1}{2}$  in., as in detail (K). This sketch shows how, in the centre of both bars, a recess is cut into which the spring rests. About 1 in. of helical spring will do here, from  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. diameter. Now remove the top bar of the mangle for fitting in the rollers, etc.

Slide on each spindle a brass washer, fit the correct blocks each end and push between the side posts. See here that the washers are thick enough to prevent any end play of the rollers, adding an extra one if necessary. Over these fit the two pressure bars, the lower one resting on the top ends of the upper bearing blocks.

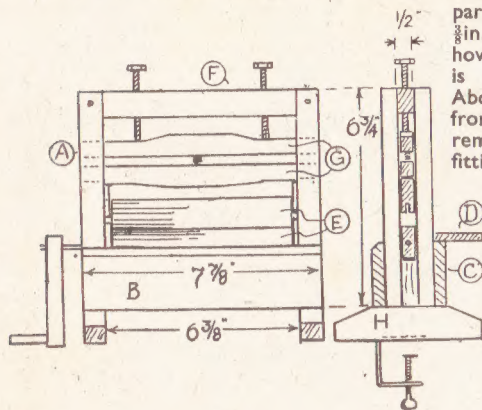


Fig. 1

to three of the four ends.

The fourth end needs a longer spindle, as it carries the handle of the mangle, so should be about 2 ins. long. To fix this latter spindle more effectually, a little filing to the point should be done for it to penetrate the wood a trifle deeper.

The bearing blocks for the rollers are shown at (N) and (O), the former carrying the lower rollers, and the latter the upper ones. These can be cut from the solid wood or formed by gluing  $\frac{1}{2}$  in. square strips to  $\frac{3}{4}$  in. wide pieces of  $\frac{1}{2}$  in. wood, as preferred. A good plan is to prepare a strip long enough for the blocks, and cut it up into four pieces, of the lengths given, two of each size being required. Centre and drill blocks (N)

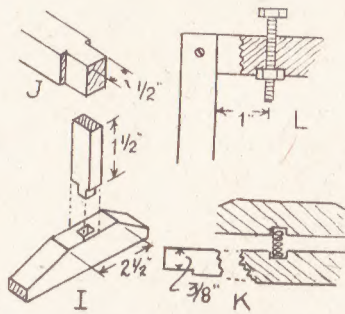


Fig. 2

Before replacing the top crossbar, bore a hole  $1\frac{1}{2}$  ins. from each end, for the adjusting screws to enter. These are a pair of  $\frac{1}{2}$  in. by 2 in. or 3 in. steel bolts, with hexagon heads and nuts. In the underside, chisel out recesses for the nuts to enter about halfway, as at (L) Fig. 2. Now replace the bar, and turn the bolts until they press, not too heavily, on the rollers. A good idea is to bore a shallow recess in the top bar, at each of the places the bolts bear upon, to prevent any side shifting of the bar.

The handle (Q) in Fig. 3, is a length of  $\frac{1}{2}$  in. by  $\frac{1}{2}$  in. wood, cut to the measurement given. In one end, that which goes over the roller spindle, cut a square hole. The end of the spindle should be filed roughly square to tightly fit this.

As some strain comes on the handle at this place, the hole should be strengthened by nailing over it a small piece of sheet metal, with a square hole to correspond with that in the wood. See the fit is a tight one, then the handle will not develop an annoying tendency to fall off. At the opposite end, glue and screw a piece of dowel rod for a hard grip.

### Securing the Mangle

If a pair of cramps are considered desirable, to enable the mangle to be fixed more securely to the table, buy two of those cheap iron ones, usually to be got at most hardware stores. These can be fitted to the feet, as in the side view Fig. 1, the top arm of each cramp being sunk in the wood, and then fastened with a single screw.

Fix so the screw of the cramp comes just under the centre of the feet. The screw holes should, if possible, be well countersunk, but as this is an awkward job to do in such circumstances, see that the recesses in the feet are deep enough to sink not only the top arm of the cramp, but also the projecting screw-head, or the latter will mark the table when the mangle is cramped to it.

(394)

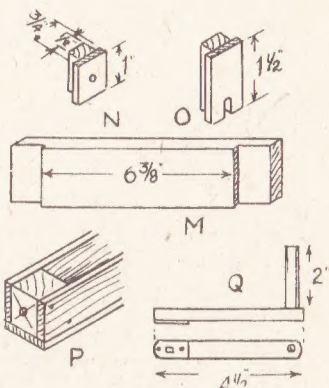


Fig. 3

### CUTTING LIST

Posts (A) (4) — 6  $\frac{1}{2}$  ins. by  $\frac{1}{2}$  in. by  $\frac{1}{2}$  in.  
Rear bar (B) — 7  $\frac{3}{8}$  ins. by 2 ins. by  $\frac{1}{2}$  in.  
Front bar (C) — 7  $\frac{3}{8}$  ins. by 2 ins. by  $\frac{1}{2}$  in.  
Board (D) — 7  $\frac{3}{8}$  ins. by 1  $\frac{1}{2}$  ins. by  $\frac{1}{2}$  in.  
Top bar (F) — 7  $\frac{3}{8}$  ins. by  $\frac{1}{2}$  in. by  $\frac{1}{2}$  in.  
Pressure bars (G) (2) — 7  $\frac{3}{8}$  ins. by  $\frac{1}{2}$  in. by  $\frac{1}{2}$  in.  
Feet (H) (2) — 4  $\frac{1}{2}$  ins. by 1 in. by  $\frac{1}{2}$  in.  
For rollers, 2 — 6 in. lengths of 1 in. diameter wooden rod. 1 pair of  $\frac{1}{2}$  in. by 2 in. or 3 in. steel bolts, with hexagon heads and nuts. 1 pair of small size iron cramps (optional).

### Lineside Camouflage—(Continued from page 419)

'Stone paper' can also be purchased in sheets. This gives the appearance of rough stone finish and is at times more appropriate than brick. The brick paper, however, is more colourful.

In all cases, these papers must be well secured to the underlying strip and to this end good quantities of fairly thin glue must be used. It is no good trying to work with small quantities of adhesive. Both paper and support are well coated, and, after being brought into contact, are 'rubbed together' with a soft pad. Strength is helped by taking the paper

over the edges of the strip in question and well down on the further side, which, being away from the observers, need not be completely covered.

### FRUIT HOLDER DESIGN

Material for making the Fruit Holder (No. 2892) from this week's design, is available, price 6/11, including tax, from Hobbies Branches, or 7/9 post free from Hobbies Ltd., Dereham, Norfolk.

Model advertisements (bought in sets) often help to give a more realistic and railway-like finish to a wall. But do not overdo them. Too many all over the place may spoil an otherwise good effect.

For a really nice finish, the ugly space between rail-level and the floor must be camouflaged and here we cannot beat draping with some old dark-coloured curtains, which somehow give the vague impression of a continuous embankment. They also make the track look solid and take away that appearance of being suspended in mid-air.

(398)



# Railway modellers will appreciate these hints on LINESIDE CAMOUFLAGE

**S**CENIC effects are really very important to a model railway. Indeed a line without a 'surround' is like a picture without a frame. The frame certainly is never the picture, but a nice frame can make a good picture look infinitely better, and often turns a poor one into something passable.

Therefore, if you have not done so before, concentrate to a certain extent upon the scenic effects of your layouts, and there is little doubt that you will be surprised at the difference it makes in every way.

Effects around a line can be used in two ways, for they can be made (1) to add to the apparent size and importance of the system or (2) to take away surrounding items that are not wanted and spoil the 'look of things'.

## No Need For Expense

Curiously, although generally covering fairly large areas of vacant space, scenic effects need not be expensive. In fact they can be added very cheaply, as much use can be made of materials such as wrapping paper, pieces of sandstone, plain wall-papers, old curtains and the like. Items not close up to the tracks

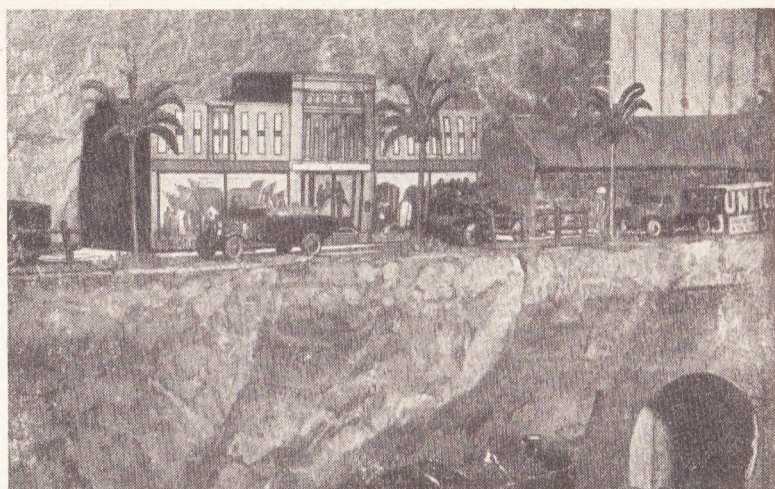


Fig. 1—An arrangement that hides an unsightly mantelpiece. The buildings are inexpensive 'sheet' toys

young people to cut it easily with scissors, but it can be strengthened for model railway work by pasting rectangles of stiffer card on the inside. A whole range of buildings can be obtained in these cheap 'cut-outs' including shops, houses, farms and petrol stations. From recent observation the list seems to be growing.

Fig. 1 is interesting for two reasons, for apart from giving the model layout a town, the arrangement hides an unsightly mantelpiece. All lines that are permanently laid in rooms have at

they are extremely easy to make in quantity. Their use in hiding things is found in such places as where a back-ground meets the baseboard and leaves an ugly line and where other items do not join too well.

Model walls are made by covering strips of card or wood with 'brick paper' which is obtainable at any model dealers at a few pence per sheet. With the necessary materials to hand, large amounts of wall can be rapidly built of any desired shape and size to suit the special requirements. Indeed on this question of good 'fitting', home-made wall is far better than any bought lengths, which seldom seem to fit exactly.

## Fitting Buttresses

Good standing can be secured with cardboard walls by bending the material out to a buttress every so often and wherever possible taking it round at right angles (see Figs. 2 and 3). If shapes like this are not wanted, then triangular pieces must be placed at the back to give the necessary support.

(Continued foot of page 418)

BUTTRESS SHAPES AS (A) AND RIGHT-ANGLE BENDS (B) MAKE CARD WALLS STAND.

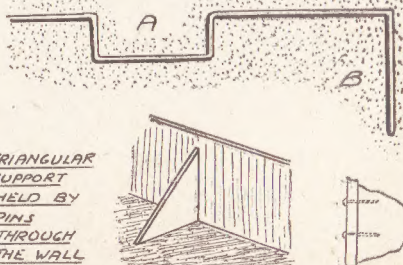


Fig. 3—Wall construction

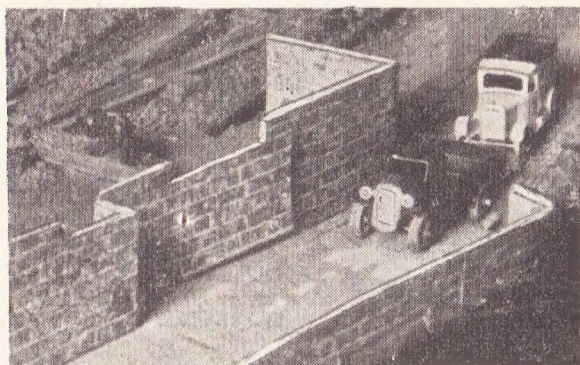


Fig. 2—Cardboard walls

are really better if broad in conception and with no great detail. In some cases, such as hills, the rougher the finish, the more realistic they look.

Model towns set here and there are effective and can be built up from those sheets of 'cut-out' toys which can be bought for a few pence, and which, in their own way, are really rather good productions.

Take a look at Fig. 1. Here we get a quite presentable model street. Yet the buildings you see there cost under sixpence. The large store was bought at what at one time would have been called the 'penny stall' at the local market, while the left-hand erection cost only the value of its brick paper covering—perhaps one half-penny. The cardette upon which the cheap lithographed toys are printed is somewhat thin, to allow

some point to cross before the fireplace but the mantelpiece is normally too high for the tracks which have to be run past at some lower level.

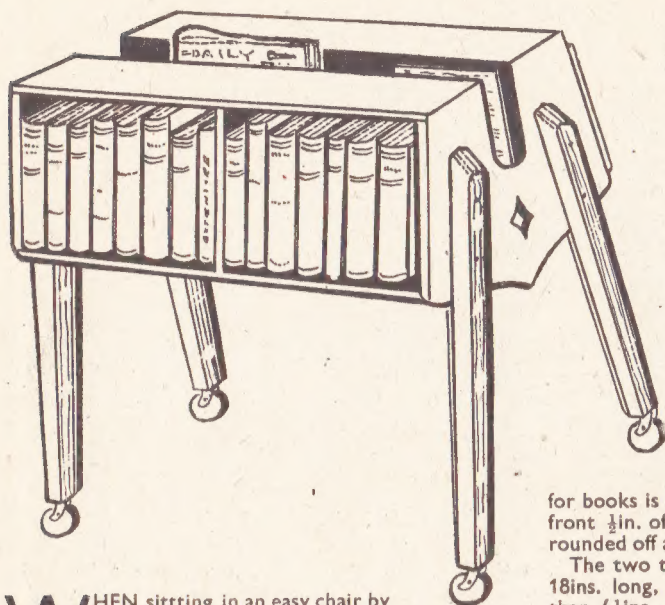
Model lines, mantelpieces and fireplaces do not agree too well, so, perhaps, there is no better place in a room to attempt a little camouflage. On the line in question, a sheet of thick and slightly crumpled wrapping paper was hung from the edge of the shelf to track level, and a strip of plain blue paper pasted along the wall at the back. The town was then assembled as indicated. The 'Dinky' motors certainly help the effect, but are not absolutely essential.

## Walls

Walls are of great assistance in giving an appearance of completion and are first-rate 'camouflagers'. Moreover,



# For the man who reads, this is the ideal FIRESIDE COMPANION



**W**HEN sitting in an easy chair by the fireside reading the newspaper or studying a book, it is nice to have books of reference such as dictionaries, encyclopaedias and maps in a handy place. It is most annoying to have to jump up every little while when a book is needed from the bookshelf or from another room, and it can also waste a considerable amount of time.

All this can be avoided by having reference books in a fireside reading companion as illustrated and described in this article. The shelves for books on either side are at a convenient height when sitting in an easy chair and the castors on the legs make it quite easy to turn round to get a book from the other side. In the centre is a space for newspapers and magazines, while the top is left flat to hold the books being referred to, or for a small reading lamp.

## Any Kind of Wood

It does not matter what kind of wood is used, but as the ends are made of plywood it would probably be best to make the shelves and legs from a light coloured hardwood. The whole framework can then be stained and polished, or else painted with a cellulose lacquer.

Cut the two end pieces first of  $\frac{3}{4}$  in. plywood having a length of 11  $\frac{1}{2}$  ins. and a width of 14  $\frac{1}{2}$  ins. No great difficulty should be experienced in cutting them to the shape shown in Fig. 1. A coarse cut fretsaw will do nicely if the job is not hurried through. And it is not necessary to stick rigidly to the design given if you have a better idea in mind.

Next, mark out on the insides of the two ends the exact positions for the bottom shelves, the two top pieces and

the four ply panels forming the interior section. You will then be able to cut these various pieces and fix them into their exact positions quite easily.

Make the bottom shelves for the books first. These are two pieces of  $\frac{3}{4}$  in. thick wood, 16  $\frac{1}{2}$  ins. long and 5 ins. wide. The width allowed

for books is 4  $\frac{1}{2}$  ins., and the front  $\frac{1}{2}$  in. of the boards is rounded off as shown.

The two top boards are 18 ins. long, a shade wider than 4  $\frac{1}{2}$  ins. and  $\frac{1}{2}$  in. thick. A slight bevel on the back of each to fit the ply panels accounts for the extra width. These top boards are fastened to the top of the end pieces and not in between like the bookshelves.

These four boards can now be glued and firmly pinned in position. While it is only necessary to use panel pins on the top it is best to screw the bookshelves in as they will carry a fairly heavy load. There is room to fix corner blocks underneath and on the inside if desired.

## The Book Shelf Backs

When the glue has set firmly, the ply backs to the book shelves can be cut and fixed. These will be 16  $\frac{1}{2}$  ins. long, about 9  $\frac{3}{4}$  ins. wide (check up on this from the marked side before cutting) and  $\frac{3}{8}$  in. thick. Glue and fasten these with small panel pins—there is not much room to

knock the pins in but if holes are drilled in the plywood first it will be quite easy.

It will be found that there is nothing to which to fasten the ends of the plywood panels, but if wedge shaped spacing bars are cut as shown in Fig. 1 they can be secured to them. If cut about 8  $\frac{1}{2}$  ins. long,  $\frac{1}{2}$  in. thick, and 1 in. wide at one end, tapering off to nothing, they should fit all right, but check up on these sizes first. Glue and pin firmly to the end pieces of the framework. A few pins in the ends of the ply panels will hold them secure.

## Centre Section

Now cut the ply panels which form the centre section of the stand, and the space between them as shown in Fig. 1 is 2 ins. Cut two pieces of  $\frac{3}{8}$  in. ply 16  $\frac{1}{2}$  ins. long and about 9  $\frac{3}{4}$  ins. wide. Bevel off the top edges of these to practically a knife edge so as to fit flush with the top of the case, and glue and pin in as before.

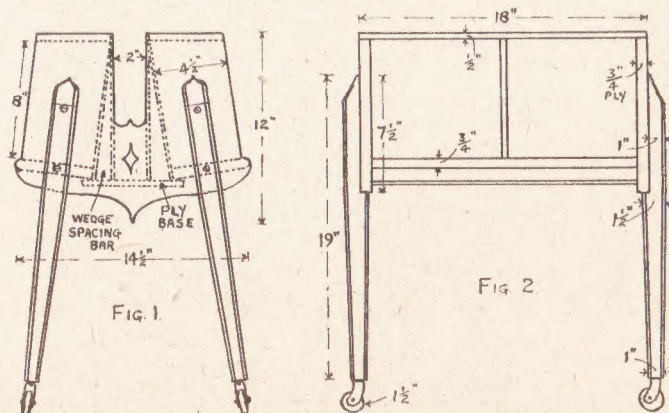
A light partition is shown in the centre of the book shelf in Fig. 2. This helps to keep the books in order and also acts as an extra support for the ply back, but it can be omitted if desired.

This completes all the casework and it only remains to fit four strong legs to finish off the job. By choosing nice straight-grained wood free from defects, the cutting and shaping will be made much easier.

The length of the legs can be varied to suit your own requirements—you may like the case to be nearer to the floor or just the opposite. The size shown, however, gives a well balanced appearance which should do for most purposes. Cut four pieces 19 ins. long and 1  $\frac{1}{2}$  ins. square, and from one side of each, cut out a piece  $\frac{1}{2}$  in. deep to a distance of 7  $\frac{1}{2}$  ins. This allows the leg to fit closer to the end piece and also forms a support for the case.

Besides shaping the tops of the legs as

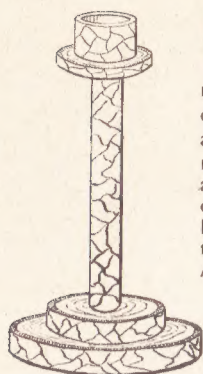
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Constructional details



# Attractive novelties are these RUSTIC CANDLESTICKS



**R**USTIC hand-work always attracts admiration. Quite ordinary everyday articles take on a new and striking aspect when slices of logs and branches have been used in their construction. As presents, they delight, and as raisers of pocket money they find a quick sale.

Instances of what can be done in this type of wood-work are the two candlesticks illustrated. As will be readily apparent, they are merely the two common types of candlestick 'rusticised'. The only materials needed are some short pieces of thick and thin logs, well seasoned and having their bark firmly attached. With so much log fuel now supplementing the coal fires in many homes, most or all of the wood needed can be found in the house. A little thick copper wire, if available, will give a handsome effect when banded round the candleholder of the tray type shown.

The log widths indicated may be varied slightly—but not too much—if the exact dimensions cannot be met.

## Trial Slices

If you have not done this sort of work before, it is good practice to cut a few trial slices, so as to gain the ability to cut a clean slice of even thickness. The ability soon comes. A sharp saw is essential, as is a firm upright against which to press the log while sawing—for the thinner logs, a bench hook, and a log-sawing horse for the thicker ones. Once the cut is started, saw right through without turning the log, for turning results in unevenness which is hard to remove.

The standard candlestick calls for logs of diameter 4ins., 2½ins., 2ins., 1½ins. and ½in. First prepare the base. For this, cut ½in. slices from 4ins. and 2½ins. logs, taking care not to damage the bark as you finish the saw cuts. Glasspaper the 4ins. base piece on both sides, and the 2½ins. piece on one side only. The glasspapering should be continued until the smoothed side shows a surface of satiny, unbroken lustre when held so

that light is reflected from it. The slightest roughness will show up in an unsightly manner when the article is varnished.

Next cut a 5ins. length of the ½in. diameter wood for the pillar. The ends of this need only be glasspapered sufficiently to remove any slight saw burr.

## The Flange

For the flange beneath the candle socket, choose a part of the 2ins. log where the bark is very firmly attached to the wood. Saw a ½in. thick slice for this and glasspaper both sides.

Before cutting the candle socket piece from the 1½ins. wood, glasspaper the end, and then drill with brace and bit a hole ½in. wide and ½in. deep. Make the saw cut ½in. from the drilled end, and smooth off any saw burr carefully.

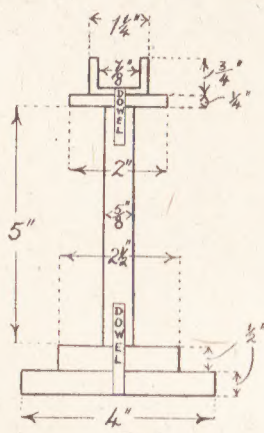


Fig. 1

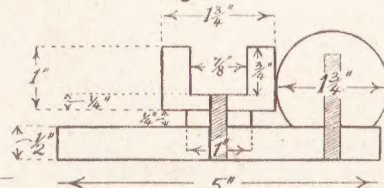
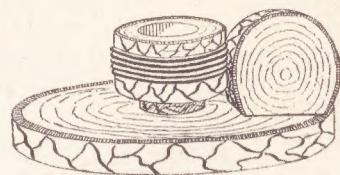


Fig. 2

The parts are fitted together with short lengths of ½in. dowel, and a touch of glue between the contacting surfaces makes the whole job rigid. Care must, of course, be taken when drilling the dowel hole in the pillar, to make a dead vertical hole. To avoid damaging the thin base of the candle socket it will be found better to glue socket to flange before drilling.



This type of candlestick is best made in pairs so as to balance their effect on sideboard or mantelpiece. A good finish is ordinary shellac and methylated spirit varnish thinly applied and giving several coats until a smooth lustre has been attained.

## Tray Type

For the tray type candlestick select logs of diameter 5ins., 1in., and 1½ins. Cut and glasspaper on both sides a ½in. slice from the 5ins. log, then a ½in. disc from the 1in. log. This latter need not, of course, be polished, for neither of its sides shows in the finished article.

The candle socket is smoothed and drilled before sawing it off the log, in the same way as for the standard candlestick. If, however, you intend to bind it with copper wire, then this must be done first—before drilling, for the loose ends have to be lightly hammered in and this operation might split the socket if it were already drilled.

Wrap four or five turns of wire round the socket, allowing a ½in. overlap at each end before snipping off the surplus. Remove it, and sharpen a ½in. of each end with file or grindstone, and bend up at right angles. Hammer in one sharp end, bind the rest round evenly, tapping lightly as you go to bed it in. The other sharp end is hammered in in the same vertical line as the first, so that these will be finally hidden behind the finger disc. Now drill and saw off the candle socket.

The finger disc is a ½in. slice from 1½ins. wood, and has a portion sawn off, as indicated in Fig. 2, so that it will fit flush. The dowel hole for this is best drilled before sawing the slice off the log. Glasspaper this on both sides.

Carefully drill the other dowel holes (the dowel positions are indicated in Fig. 2 by the shaded rectangles), and glue all dowels in, also giving a touch of glue between the contacting surfaces.

This candlestick, too, is given a warm and cheerful tone by using shellac-meths varnish. The copper banding, however, is best left uncovered so as to preserve the colour. (115)

## Fireside Companion—(Continued from page 420)

shown in Fig. 1, also bevel them off as in Fig. 2. The bottom part of the legs, from the 7½in. mark, are tapered to 1in. at the end. They can be left square, but will certainly look better and more in keeping with the design if the edges are chamfered as shown in the sketches.

Carefully drill the ends of the legs to fit the castors, a useful size for these being with 1½in. wheels. If rubber tyred ones are used then they will probably be a little larger. Fix the legs on to the sides of the case with wood screws.

Well glasspaper the entire woodwork, stain to the desired colour, and then polish. If a cellulose lacquer is used it is best to give a coat of priming first, allowing it to dry well before applying the lacquer. (112)



# A modern method for the old game of NOUGHTS AND CROSSES

**T**HE old game of noughts and crosses still seems to be very popular and causes endless amusement to people of all ages. There is, however, one rather serious drawback and that is the large amount of paper that can be used up when one is a really keen player.

All this is avoided by making the simple little board described in this article. Different coloured marbles are used instead of marking the paper with noughts and crosses.

Before describing the making and working of the board, let us have a word or two on how the original game is played, for the benefit of those who do not know.

## The Squares

Nine squares are made in three rows of three by putting two parallel lines on the paper and crossing them with two more parallel lines. One player puts a cross in one of the squares, then the other player puts a nought in another square and so on alternatively—the object being to get a row of either noughts or crosses.

The first to complete a row is the winner. Besides trying to get a row you must also try to stop your opponent from completing his row. You can win by getting a row of any three across or up and down, or even a diagonal row.

A very interesting modern variation of the game is played by having rows of four instead of the more usual three. This makes the game rather more

complicated, and it is not at all easy to get a completed row of four. It is, therefore, necessary to score by means of points—one being allowed for three in a row and two points for a complete row of four.

When playing on the 'four' board the game must be continued until all holes are full and then the scores added up. This is different from the 'three' game which stops directly one of the players has completed a row.

When playing on the board, clear marbles can be used for, say, noughts, while the crosses can be represented by a coloured marble.

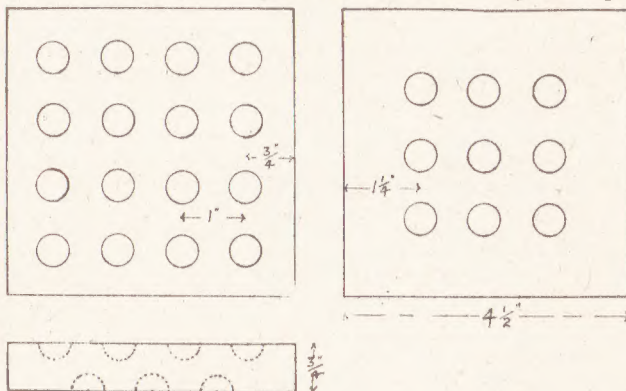
The board is designed for both the three and four row games—one being on each side. Choose a piece of nice close grained hardwood for the job—about  $4\frac{1}{2}$  ins. square and  $\frac{3}{4}$  in. thick. If carefully marked out according to the measurements given in the drawings none of the holes on one side will be opposite any of the holes on the other side.

To make the holes, first drill a small guide hole, and then with a counter-sinking bit, drill down until the top of the

hole has a diameter of  $\frac{1}{2}$  in. Now cut the hole semi-circular with a gouge and glasspaper smooth.

A very useful tip for doing this job is to take a piece of  $\frac{1}{2}$  in. dowel rod, round off one end, and by placing a piece of glasspaper over it, twirl it round in the hole. If the dowel is cut to fit a drill-stock, a really expert finish can be obtained in much less time.

A somewhat easier way of making the board is to use 1 in. lengths of  $\frac{1}{2}$  in.



dowel rod instead of the marbles. Drill  $\frac{1}{2}$  in. holes in the board to a depth of about  $\frac{1}{2}$  in. and glasspaper the dowels until they are an easy fit in the holes. One half of the dowels can be painted with red tops while the other half can have black tops.

Finish the board off by either french polishing or with a good wax polish. (356)

## Replies of Interest

### Reducing Motor Speed

**I** HAVE a Hobbies Bench Lathe with the two pulleys as supplied,  $1\frac{1}{2}$  ins. and  $1\frac{1}{2}$  ins. My supply of power is a 110 volt D.C. electric motor  $\frac{1}{3}$ rd H.P., rating 1,440 r.p.m. and fitted with a 4 in. pulley which turns the lathe at too great a speed. I wish to obtain a speed of approximately 700-800 r.p.m. How can I reduce the speed of the motor to obtain this? (W.E.S.—Kidderminster).

**W**E would say that to produce a speed of about 700 r.p.m., a  $2\frac{1}{2}$  in. diameter wheel should be put at the end of the motor spindle, and a 5 in. wheel on the outer end of the lathe spindle.

### Making Blue-print Paper

**I** TRIED making blue-print paper, mixing the two solutions as instructed, but it was just a blank bluish-green. Can you give any reason for its failing? (F.A.—Bristol).

**I**T may be that the solutions were made with impure chemicals; the water was contaminated, or the paper might not have been suitable. Possibly the paper has 'fogged' by exposure to light, or the

exposure given may have been incorrect. This is probable, and a test at different exposures should be made. The final washing may have been inadequate or insufficient in volume and purity. We suggest you check on these points and try again.

### Bleaching Oak

**I** AM building a small residence pipe organ, and have just completed the console which is fitted with a roll top cover, and in selecting well seasoned oak, I have had to use wood of varying colouring. I wish to finish the console in a natural shade by oiling and waxing, but there are one or two pieces which are considerably darker in shade than the tone in which I wish to finish. Can you advise me as to the best method of bleaching these darker pieces so as to bring them up to the lighter shade desired? (S.G.—Oulton Broad).

**O**AK can best be bleached with an application of oxalic acid. This should be diluted, about 1 pint of water to 1 oz. of the acid. It is best to leave for a day or two to see that the bleach has

taken permanent effect, and to give a second application if thought necessary. All being satisfactory, wipe over the surface with common brown vinegar, and let dry before finishing.

### Casting Lead Soldiers

**I** AM interested in casting lead soldiers, and wish to make them hollow. Can you advise me as to the correct percentage of other material to be added to the lead, and the temperature of the mixture? (A.M.—Plaistow).

**H**OLLOW lead soldiers, or other cast objects, can be made by simply pouring the molten metal into the mould, then pouring out the surplus. The metal chills on the parts in contact with the mould, much faster than the central mass—hence the 'pouring out'. We fear the present restrictions on metal usage will hamper or prevent a continuance of your hobby, but if obtainable legally, a mixture of 65 per cent lead, 25 per cent antimony and 8 per cent tin and 2 per cent bismuth, would make a good casting alloy.



# Every home handyman should have a PORTABLE TOOL BOX AND BENCH

**T**HE subject of this article forms a useful tool container for the handyman. It was designed for the person wishing to carry out various repairs about the house, and provide a means of carrying all the necessary tools to the seat of work, and also forms a small workbench for doing some of the work on.

It is quite compact and yet it contains a complete kit of tools easily accessible, and which can be brought into use at a moment's notice. It is not necessary to adopt the layout as given, nor need the size of the case be closely adhered to. You may be interested in engineering or metal work of some kind, and would like the case made into a portable workshop for the purpose.

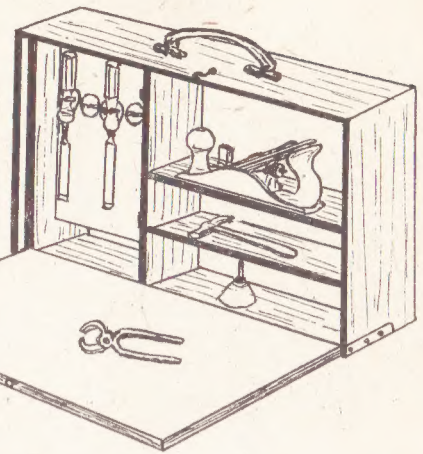
The wood carver would find that it makes an ideal bench for carrying on his craft with all the tools within easy reach.

The overall size of the case when closed is 24½ ins. long, 14½ ins. high and

pieces of ½ in. plywood 23 ins. long and 5 ins. wide; and for the ends, two pieces 14 ins. long and 5 ins. wide. Besides

gluing these together, it would be as well to screw them and make a strong joint, as a considerable strain will be put on the corners when the case is carried about. Carefully drill and countersink the end pieces and use three 1 in. screws for each joint.

You can now cut the outside pieces to fasten on to this framework—two pieces 24½ ins. long and two pieces 14½ ins. long; all four pieces are ½ in. thick plywood. The top and two sides are 6 ins. wide and the bottom piece 5½ ins. wide. Mitre all the corners and glue in position, allowing them to overlap at the back by ½ in. and at the front by ¾ in. Fine panel pins about ½ in. long should be used to hold these secure.



all that is necessary is to fit a brass side hook and eye near the handle as shown.

The handle on the top now completes the case framework, and it only remains to put the internal fittings in the required positions. A suitable handle can be bought quite cheaply, or one taken from an old suit case would do very well indeed. Make sure that it is fastened on securely; nuts and bolts would be the best way of ensuring this.

## Positioning the Shelves

The actual number and positions of the shelves and internal fittings will depend on the nature of the work to be done, but for general all round repairs the layout shown in the sketch will be found satisfactory.

Wood ½ in. thick will be found quite sufficient for the job. Cut and fit the upright piece first, 13 ins. long and 3½ ins. wide. Place it 7½ ins. from the left side, which will leave 15 ins. on the other side for the two shelves and these are the same width of 3½ ins.

Chisels, screwdrivers, bradawls and files are held in position in spring clips which are obtainable from Hobbies Limited. The 7½ in. space on the left side of the case will just take five of these with a circular back plate of 1½ ins. diameter.

In order to hold more tools in a handy position a plywood panel is hinged to the front of the upright partition, and can be fitted with spring clips on each side.

## Drawers For Nails?

It would be a good idea to divide one of the shelves on the right side, and fit two or three drawers to hold small goods such as nails and screws. At the back of the top shelf, a turn button through the handle and a slotted piece of wood at the other end holds a tenon saw in position.

The best way of finishing the case is with two or three coats of good oil paint, allowing plenty of time between each coat. The preliminary use of a good quality wood filler will improve the ultimate finish (407)

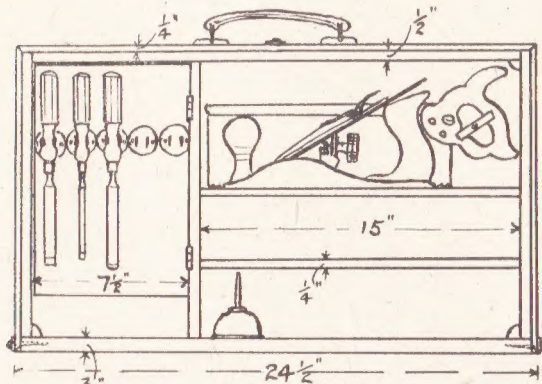


FIG. 1.

These diagrams show the dimensions and general arrangement of the box

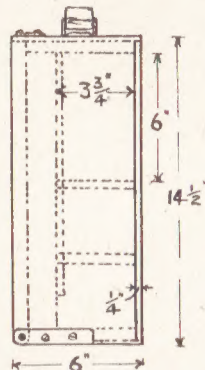


FIG. 2.

6 ins. deep. With the exception of the shelves, all the woodwork is made of plywood, and if care is taken with the cutting and fitting together no difficulty should be experienced. Plywood is always best cut with a fine saw, and for this nothing beats the fretsaw. It may be slower but it will not splinter or damage the wood and it is well worth the extra time taken.

## The Sides

Reference to Fig. 1 will show that the sides of the case are each made up of two pieces of wood. First a framework is made of ½ in. wood and then on top of this is placed a layer of ½ in. plywood. Not only does this method give extra strength but it allows the lid, which also forms the bench to fit inside neatly, thus making a tight job.

For the top and bottom cut two

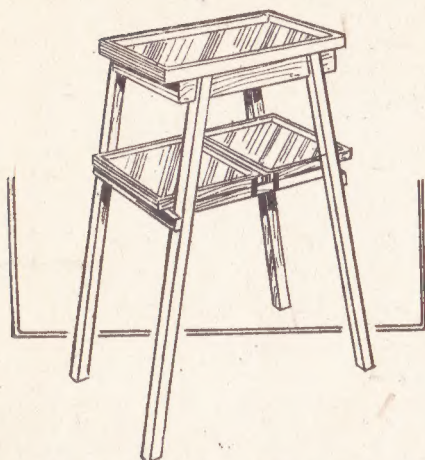
## Cutting the Back

The back can now be cut from a piece of ½ in. thick plywood to fit into the framework: the size will be 24 ins. long and 14 ins. wide. Make it a good fit, and glue and pin firmly in position.

The bench part of the case, which also forms the lid, needs to be substantial, and for this purpose a piece of plywood ½ in. thick is used. It is made a nice easy fit, and will be 24 ins. long and 14½ ins. wide. Reference to Fig. 2 shows the bottom part rounded to enable it to swing easily on the pivot hinges. These are simple to fit and are effective, consisting of nothing more than a long thin screw fitted through the ply outer case. A strip of metal is used to strengthen the pivot hole, and is screwed firmly to the bottom of each side as shown in Fig. 2. To keep the lid fastened,



# Tea for two would be pleasant with this TÊTE À TÊTE TABLE



FOR afternoon tea, quite a small table is desirable, one that can be moved about as wished. The table illustrated is quite light to handle, and just large enough to hold the necessary tea things. The addition of two pull-out trays on which a tea cup or cake plate can stand, avoids the awkwardness a visitor may feel at trying to hold both tea cup, and cake in the hands. It is called a Tête à Tête, being designed for two people, but, of course, can be used for more.

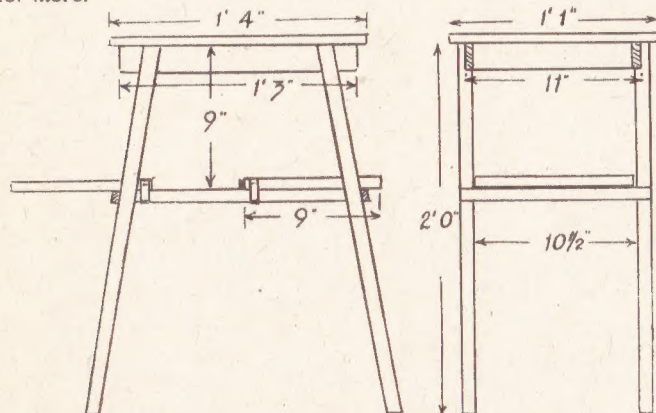


Fig. 1—Front and side views, showing measurements

Fig. 1 shows a front and side view of the article, which is quite easy to construct. Commence by making the underframe of the top. Cut the sides to length, and near each end chisel out grooves,  $\frac{1}{4}$  in. deep, at the angle given at (A) in Fig. 2 for the legs. Cut the ends, and join these to the sides with a rebated joint, as at (B), the rebate cut into the sides being  $\frac{1}{4}$  in. deep. Glue and nail these parts together.

## Making the Legs

Cut the legs to length given, try these in the grooves, and trim off at the top to bring them level with the sides. A

similar amount is also sawn from the bottoms to let them bed flat to the floor. Glue the legs in place. The lower side rails, the exact length of which must be measured across the legs at 9 ins. down, are then nailed across on the inside, the ends being trimmed to the play of the legs. End lower rails are then nailed across, these having their upper edges bevelled a little, to make them level with the side rails, as in detail (C) Fig. 3.

## The Top

The table top can be cut in one piece from plywood, or from  $\frac{3}{4}$  in. to  $\frac{1}{2}$  in. wood of the ordinary kind. As this forms a tray, it should have a lipping of  $\frac{1}{4}$  in. by 1 in. wood, glued and nailed round, the corners being neatly mitred as at (D). Fix this to the underframe with sunk screws from underneath. This is a quite easy fixing. First, at the chosen spots, bore  $\frac{3}{16}$  in. holes, about  $\frac{1}{2}$  in. deep, then finish with smaller holes to fit the screws. Drive in until the screw heads disappear in the holes, as at (F). About three screws to each side, and two to each end, will suffice. Be sure the screws are not long enough to pierce the table top.

Fretwood,  $\frac{1}{4}$  in. thick, would do for the pull-out trays. Cut these to size, and nail and glue round each a lipping of

$\frac{3}{16}$  in. flat head brass screws. The holes in the metal pieces should be countersunk. Now, with the trays resting on the side rails, screw the metal parts so that the bent portions come over and under the rails, as at (E). They should then be easily withdrawn to the limit of travel. At the centre of each side rail, drive partly in, a brass screw, file the

## CUTTING LIST

Legs (4)—2ft. by 1 in. by  $\frac{3}{4}$  in.  
Top—1ft. 3  $\frac{1}{2}$  ins. by 12  $\frac{1}{2}$  ins. by  $\frac{1}{2}$  in. (or plywood).  
Under frame sides (2)—1ft. 3 ins. by 1  $\frac{1}{2}$  ins. by  $\frac{3}{4}$  in.  
Under frame ends (2)—10 ins. by 1  $\frac{1}{2}$  ins. by  $\frac{3}{4}$  in.  
Lower side rails (2)—\* by 1 in. by  $\frac{3}{4}$  in.  
Lower ends (2)—1ft. by 1 in. by  $\frac{3}{4}$  in.  
Sliding trays (2)—10 ins. by 8  $\frac{1}{2}$  ins. by  $\frac{1}{4}$  in.  
Lipping for top— $\frac{1}{4}$  in. by 1 in. by 5ft. run.  
Lipping for trays— $\frac{1}{4}$  in. by  $\frac{3}{4}$  in. by 7ft. run.  
\* Measure across legs for exact lengths.

heads off, leaving pins up against which the trays will butt when pushed in. This will stop them going in too far.

## Finishing

This completes the work of construction. For finishing, after the work has been well glasspapered, and the ends of the end lower rails rounded off (they look neater thus) staining and varnishing, or painting can be chosen. Using a decent quality wood, the former finish would suit best perhaps, especially if the stain chosen suits the prevailing furniture of the room. If deal has to be employed for construction, a painted or enamelled finish would serve better.

With an article of this nature a splash of colour can be boldly chosen and not look incongruous a bit. For instance, a bright and even brilliant colour would liven up the room. Using a suitable undercoat, advantage might be taken of the hard gloss paints now so popular, or a flat colour could be chosen and a final coat of clear cellulose lacquer, which does not show up the marks of hot teapot or cups, like the ordinary polish does.

In any case, the result should provide a useful and attractive article of furniture, welcome to the housewife, and an addition to the home of real value. (100)

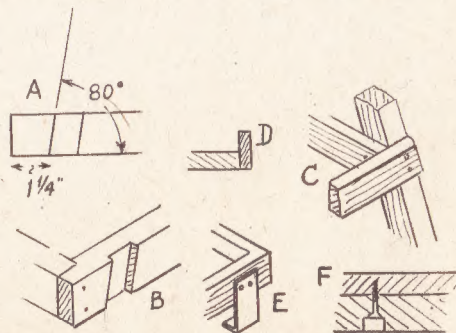
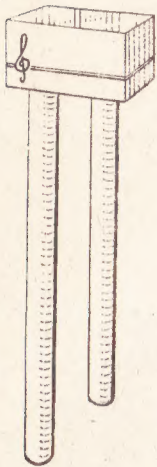


Fig. 2—The grooves for the legs

Fig. 3—Constructional details



# A popular household feature— ELECTRIC DOOR CHIMES



**D**OOR chimes have proved a popular household feature, and their mellow notes are a pleasing change from the harsh ring of the electric bell. The chimes described here can be given a very attractive finish and will prove a useful and neat addition to the entrance hall.

## How They Work

Before the construction is begun, it will be helpful to know just how the chimes function. When the bell-push is pressed, an electric current passes through the solenoid (S) Fig. 1, and the plunger (P) is pulled sharply into the solenoid. This causes the protruding end to strike tube (B).

When the bell-push is released, the current stops flowing and the light spring (C) jerks the plunger back so that it strikes tube (A). Two notes are thus given out every time the bell-push is used.

## Making the Solenoid

The 'former' on which the wire is wound to make the solenoid is shown in Fig. 2. The end pieces are cut from  $\frac{1}{4}$  in. wood and are  $1\frac{1}{2}$  ins. square. The tube is  $2\frac{1}{2}$  ins. long and can best be cut from an old fountain pen barrel. Alternatively, the tube can be made by rolling glued paper around a piece of  $\frac{1}{4}$  in. dowel rod. Drill holes of the necessary size into the

exact centre of the end pieces so that the tube fits in firmly and gives a rigid finish.

The plunger will move more efficiently if brass guides are screwed on to the end pieces. These guides (Fig. 3) can be cut to any size that is convenient, but the centre hole must be only the smallest fraction larger than the diameter of the plunger. This will prevent any sideways 'wobbling' of the plunger. The guides must be fixed so that the centre hole is exactly over the holes already drilled in the end pieces.

The winding is done with 20zs. of D.C.C. (double cotton covered) copper wire, and gauge No. 28 or something near should be used. Leave a free end of 9 ins. before beginning the winding and separate each layer of wire with a layer of gummed paper. This will help to keep the windings even and will give greater insulation. Keep winding in the same direction the whole time and leave a final free end of 9 ins. Finish off with a layer of insulating tape. The completed solenoid is shown in Fig. 4.

## The Plunger

The plunger is made from an iron bolt and a short length of brass rod. The iron bolt must be a size that will just slip easily into the solenoid. With a hacksaw cut the bolt to a length of 2 ins. The brass rod is  $1\frac{1}{2}$  ins. long and it does not matter if its diameter is a little less than that of the bolt as long as the centre holes of the

guide plates are of the correct size for each end of the finished plunger.

These two rods must be carefully soldered together. If a metal-turning lathe is available the two pieces can be joined as shown in Fig. 5B.

The spring at the head of the plunger can be made from light steel wire. A little experimenting will be necessary to get one of just the right strength; it must not be so strong that it stops the plunger from moving into the solenoid, but must be strong enough to bring the plunger out with a jerk when the current stops flowing.

## The Chimes

The chimes are cut from brass tubing. The pitch of the note given out by a tube when it is struck will depend on the length and diameter of the tube. With a diameter of 1 in. the lower-note tube needs to be about 3 ft. long, and the higher-note tube 4 ins. to 5 ins. shorter. To get the note desired from the second

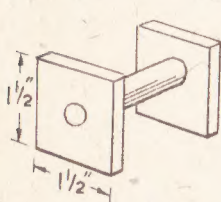
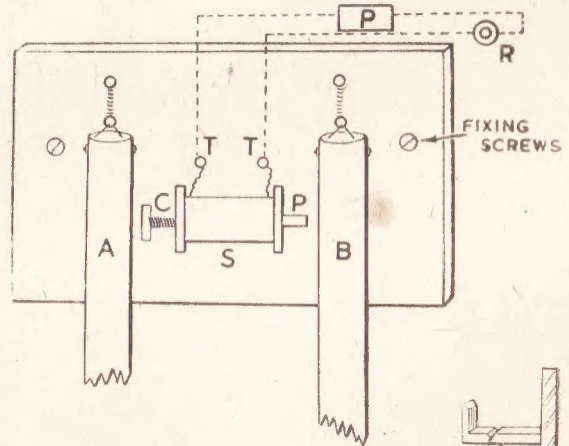


Fig. 2

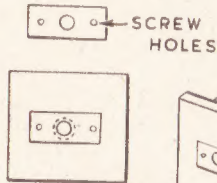


Fig. 3

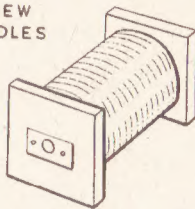


Fig. 4

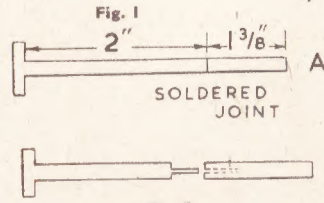


Fig. 5

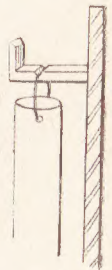


Fig. 6

tube, carefully shorten it with a hacksaw—the shorter the tube the higher the note. A final adjustment can be made by filing the end of the tube.

Now drill a small hole through each tube,  $\frac{1}{4}$  in. from one end. The tubes will sound quite well if simply hung from a small hook by means of some fine strong twine (Fig. 6). Notice the small v-groove filed into the hook to prevent the tubes jumping out of position.

Another method of suspension is shown in Fig. 7. (K) is a suitably sized

(Continued foot of page 426)

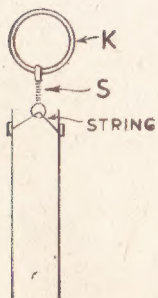


Fig. 7

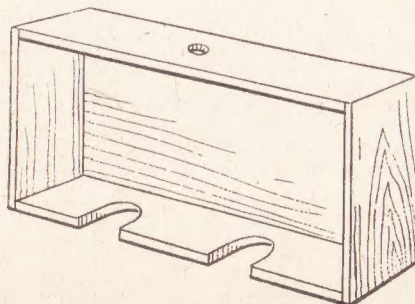


Fig. 8



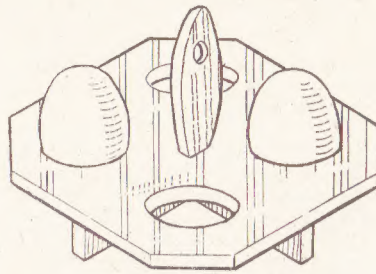
# You'll find it easy to make A PLASTIC EGG-STAND

**T**HIS egg-stand is a serviceable, and attractive plastic table model. It accommodates four eggs, and is made from two pieces of Perspex 5 mm. thick. One piece is  $5\frac{1}{2}$  ins. square, and the other 1ft. 3ins. long and 1in. wide. The square piece will make the top, and the rectangular one the feet and central stem of the model.

## How To Start

First of all cover the square piece with gummed white paper, allow this to dry, and then trim the paper to the edges of the Perspex. Now set out the plan of the top according to Fig. 1. All the shaded areas have to be removed with your fretsaw. The corners are easy. A fretsaw is also used to remove the circular pieces where the eggs fit. Smooth down the inside of each circular cut with a half-round file, and finish off with fine glasspaper.

Now, deal with the little rectangular slot in the centre of the square. To remove this, drill two holes on the long centre line of the slot, and within the perimeter of the slot. File out the rest of the waste with a needle file, but keep inside the marking lines.



The completed stand

From the 15ins. piece of Perspex cut off two pieces each  $5\frac{1}{2}$  ins. long. Fit the cut edges one upon the other, fix in a smooth-jawed vice, or between two planed pieces of wood, and draw file to make a perfectly smooth fit. Then cover each piece with gummed white paper, and, when dry, set out the feet as shown in Fig. 2. You can remove the curved waste of these with your fretsaw. These feet will later be fused together in a cross-halved joint as shown in Fig. 4, so be careful about cutting the slots. Remember that the over foot has a slot from the curved edge upwards, while the under foot has a slot from the flat

rectangular length  $\frac{1}{4}$  in. downwards. Make a trial fit of these immediately, and then smooth up all faces and put aside.

## The Stem

With the other 4ins. piece of Perspex, you can now make the stem of the model. The shape of this can be seen in Fig. 3. Cover the Perspex with gummed white paper, and set out the stem in the usual style. The thumb and finger hole is a circular one made with a No. 8 drill.

For fitting purposes make the pin at the end of the stem 1 cm. long. Then you can fuse this into the top of the stand, and file or cut away the protrusion to correct level afterwards. The fusion is done with a No. 3 paint brush charged with concentrated (glacial) acetic acid, by brushing inside the slot and all over the pin of the stem. If your fit is accurate no external pressure will be required. When you have fused the feet together, too, leave your work for twenty-four hours to settle.

Now you can fuse the feet to the top of the stand. Brush over the upper long rectangular faces of the feet several times with the acid, and carefully place the top on the feet, edge to edge. Two small irons, positioned each side of the stem, will provide adequate external pressure. Again leave your work for a day.

## An Attractive Finish

To give the stand its attractive glass finish, work on all faces with an old piece of sock soaked in Silvo, and vigorously rub off the white film with clean silk. (406)

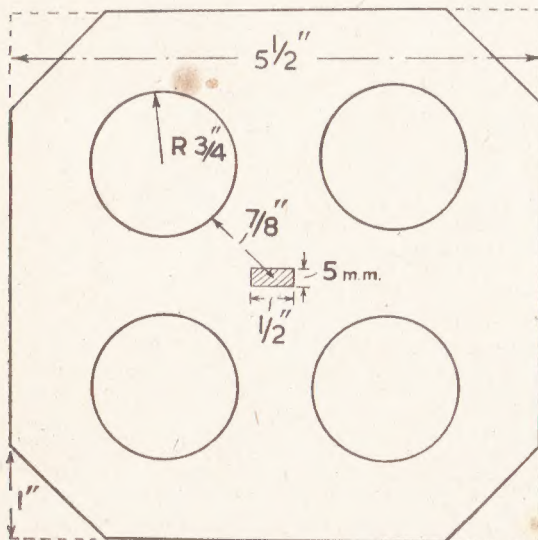


Fig. 1—Plan of the top

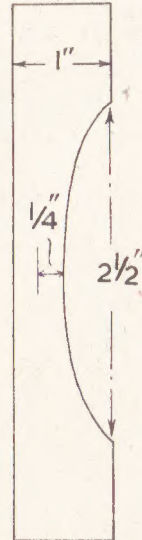


Fig. 2—The feet

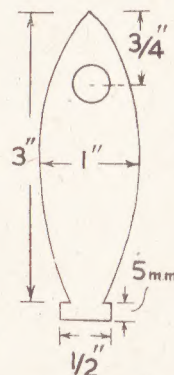


Fig. 3—The stem

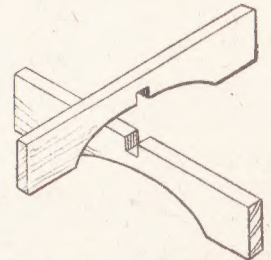


Fig. 4—Method of joining feet together

## Electric Door Chimes—(Continued from page 425)

key-ring and (S) a 1in. length of expanding curtain rod into which two eyelets have been screwed.

Cut a baseboard 7ins. by 5ins. from  $\frac{1}{4}$  in. wood, and glue and screw the solenoid into position, as in Fig. 1. Join the wires to the terminals (T) as shown, and hang the tubes so that they are about a  $\frac{1}{4}$  in. from the ends of the plunger. When the chimes are working these tubes will have to be adjusted a

little one way or the other until the plunger strikes them cleanly without any muffling. This will have to be done by gently bending the hooks towards or away from the solenoid.

## The Circuit

The complete wiring is shown in Fig. 1. (R) is a bell-push and (P) the source of power. This can be either two 4-volt batteries joined in series, or

an 8-volt bell transformer.

## Simple Cover

A simple cover for the solenoid is shown in Fig. 8, and is made to fit tightly over the baseboard. It will be safer for the reader to take the necessary measurements from his own finished model. The cover should be painted to match the decorations of the entrance hall. (119)



# A Craftsman's Notebook

## Things to Collect

**C**OLLECTING is always a popular hobby, because there is so much satisfaction to be had out of hunting for specimens to make the collection grow. Some people go in for general collections, others prefer to specialise. One young gardener favours cactus plants, which thrive in small pots without much attention and offer plenty of scope for adding different specimens.

The summer months provide lots of opportunities with such subjects as leaves and flowers, and later on there will be pleasant winter evenings devoted to arranging the pressed specimens and writing up informative notes. Such a collection makes a useful guide to the identification of trees and plants.

For woodwork enthusiasts screws and nails have interesting possibilities, for it is surprising how many sorts there are. Another idea is to get together a small example of the various kinds of wood, and one might even consider building a novel piece of woodwork containing an example of each.

I heard recently that bottle labels are enjoying a vogue, and one can imagine how much material there is to go at in this line, more so if labels from jars and tins are included. For a really colourful collection, tinfoil wrappings would take some beating. Cigarette and other small packets might be considered, also the papers from different brands of tobacco.

## Lawn Mowings for Rabbits

**N**OW that the lawn cutting season has come round you can avail yourself of some cheap, wholesome food for your rabbits, a handful or two in the hutch being appreciated as an extra to the regular menu. The clippings should be young and fresh.

A supply may also be put in store for winter use, the mowings being dried either by spreading them out in the sun on the garden path, or in a warm oven. Turn the cuttings occasionally till dry, and if they are dried in the oven, remember to leave the door slightly open to allow escape of moisture.

Rub up the dried cuttings and put away in bags or boxes for later in the year when the fresh stuff is not obtainable.

## Extracting Difficult Screws

**O**NE occasionally comes across a screw which it is almost impossible to remove in the ordinary way. But before resorting to the final drastic step of cutting into the woodwork try these dodges.

First, the simple expedient of placing the screwdriver in position, then giving it a few sharp taps with a mallet. If this

fails, try running a little paraffin or oil around the head of the screw and repeating as previously.

A hot poker applied to the head of a difficult screw will sometimes do the trick, the heat causing it to expand, and on cooling it may contract sufficiently to loosen it for removal.

## Making Up Solutions

**A**S amateurs who practise home chemistry and photography must frequently make up solutions, these hints on the subject may be of value. In the first place, water ought not to be poured on to the chemical. The method is to bring the water to a gentle swirl with a stirring rod and sift the powder in gradually. In this way there will be less likelihood of the chemical clogging into hard lumps which take longer to dissolve.

A few jars marked off with paper strips to indicate different quantities are a useful aid. The best method is to dissolve the chemical in a small quantity of water first, then add further water to bring it up to the amount specified in the formula.

Certain chemicals (e.g., potassium carbonate, sodium carbonate) are best made up in cold water, but the majority (e.g., hypo, alum, hydroquinone) can be safely and more quickly dissolved in a little hot water, after filling up with cold.

To make up a percentage solution so many parts of solid are taken and made up to 100 parts with water. Thus, 100ozs. of solution in which you have dissolved 10ozs. of chemical is a 10 per cent solution. 1 pint of water is equivalent to 20ozs.

## A Nature Note

**M**ORE than once I have seen a thrush noisily breaking shells on a stone, though not at such close quarters as recently. This indifferent bird was not a bit concerned at my presence, so I was able to watch the procedure to the finish. The finishing touch was rather surprising.

After extracting the snail from its shattered shell, the thrush grasped it in its beak and proceeded to pound it vigorously on the ground before finally swallowing it and going in search of more.

This little episode brought to my mind an earlier one when I espied a thrush fiercely trying to tug a worm out of the lawn. So great was the effort the bird was eventually compelled to relax its grip, presumably to muster strength for another attempt. But its victim quickly seized the opportunity provided by the momentary respite to withdraw to safety.

## Five Fine Models

*These splendid galleon models were constructed by Major W. E. G. Hurdle, of 527 B.S.E., Motor Trans. Unit, G.S.O., B.A.O.R.I., who was good enough to send us the photograph.*

*They are all from Hobbies Kits, and the sight of such a fine 'fleet' should serve as an inspiration to those modellers who have not so far tackled galleons.*





# Interesting pictures can be made by having a PHOTOGRAPHIC AQUARIUM

It is not a simple task for the amateur photographer to take pictures of aquatic life in the natural state: too much complicated and expensive equipment is required. To surmount this difficulty it is possible to construct a simple aquarium which, though small, gives the desired results.

It is made from a solid block of wood, and being narrow does not allow distortion of the photographs.

The block should be about 15ins. square and a few inches thick. Saw out the centre, leaving an edge of 2ins. or 3ins. There is then a frame of wood, and this must be given several coats of enamel or paint. This is to waterproof the wood, and to prevent it swelling. With the last coat of enamel a sheet of glass is cemented, using fine ordinary cement, on to either side of the frame. When this is completed you have a small aquarium of 13ins. or so high, 11ins. long, and 3ins. wide (see Fig. 1).

## Outlet and Inlet Pipes

2ins. from the top of the wooden frame bore a small hole to take the outlet pipe. When small fish and other creatures are in the aquarium for the purpose of photography there must be a continual flow of fresh water. Above the aquarium have a tank containing a supply of river water, and allow this to flow slowly by means of a rubber pipe

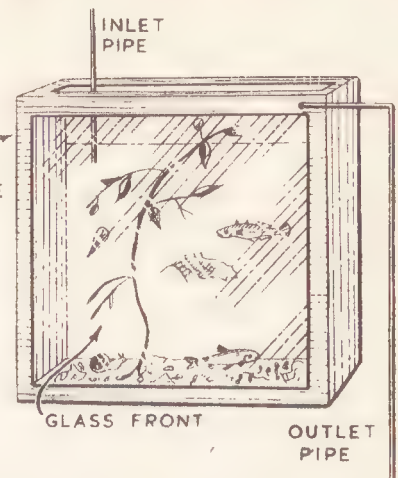
hanging into the aquarium. Over the outlet pipe tie a piece of muslin to prevent the escape of water beetles and the other smaller specimens.

## Photographing Water Life

It is not wise to leave water in such a simple aquarium for any considerable length of time. Its purpose is only to serve as a means of taking pictures of aquatic life; and it should not be used as a permanent aquarium. When it is desired to take photographs place a piece of white paper behind it; this will throw into relief the creatures to be photographed.

Water beetles, minnows, sticklebacks, gudgeon, water spiders, water snails, crayfish, and water plants, can all be used as models. It is not wise to place too great a variety of fish in at once, as many have carnivorous tastes. Photograph the fish in pairs, introducing the aquarium with different settings of weed and the other water creatures. A coating of sand can be put at the bottom, and the weeds arranged to appear as if they are growing. A few pebbles can also be scattered about the bottom.

Arrange the whole lay-out of the aquarium first, and lastly introduce the main subjects. Do not, of course, include the frame in the picture; and a



bright light used at the moment of taking the photograph should not be left to shine on the aquarium longer than is necessary.

Other creatures which form excellent models for the fascinating subject of aquatic photography are tadpoles, in their various stages, frogs, newts, and all small fresh water fish. Frog and toad spawn, and the nests which smaller fish build from twigs and minute particles of stone, are also very good subjects. (344)

# A Seedbed Marker and Rake

THE keen gardener is always on the look out for improvements that will not only make the work much easier, but will yield better results. The subject of this article is a useful little tool designed to fulfil both these requirements.

On one side are two adjustable 'V' shape markers for setting out parallel rows of drills at any distance from 4ins. to 18ins. apart. By reversing the tool we

well worth the time spent in its construction. A piece of wood 21ins. long, 2ins. wide and 1in. thick is needed for the marker portion. Cut two slots 8ins. long and  $\frac{3}{4}$ in. wide at each end, as shown. The best way of doing this is to first drill  $\frac{1}{4}$ in. holes at the ends and cut out between with a keyhole saw. There is a space of  $\frac{1}{4}$ in. on one side of the slots and 1in. on the other, and also 1in. at each end.

Glasspaper the slots quite smooth. Drill a hole in the centre of the length of the bar about 1in. diameter for a handle. To ensure a more even balance, make the centre of this  $1\frac{1}{2}$ ins. up from the marker edge.

well for this and a  $\frac{3}{4}$ in. bolt with wing nut completes the part.

## Making the Rake

The rake is made on a separate strip of wood and then screwed on to the marker bar. A piece of 1in. square hardwood 16ins. long is cut and drilled to take the nails, as shown in the sketch.

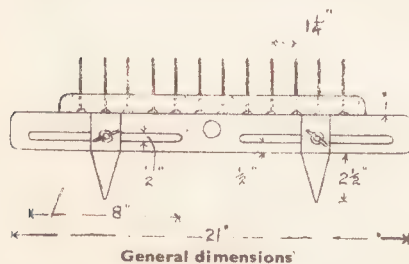
Twelve wire nails 3ins. long are placed  $1\frac{1}{2}$ ins. apart. Make sure that the nail holes are not drilled too large, nor must they be made much smaller than the nails for fear of splitting the wood. Countersink the holes so that the heads are flush with the wood bar.

The rake can then be fixed to the marker with about four wood screws, shorter ones being used for the ends so as not to come through the slots.

To fit the handle taper the end slightly to fit the marker bar hole easily, cut a slot in the end and wedge it firmly in position. The length can be made to suit the gardener's particular fancy, but a good size is between 4ft. and 5ft.

In order to protect the tool from the weather it can be painted or else a coat of varnish would do just the same.

The marker can be made wider if desired, but the tool described here is a good all round size. (387)



Details of the markers

have a small rake for covering over the drills when the seeds have been sown. This avoids having several tools lying about the ground, as it is a dual purpose one.

The tool is quite simple to make and is

The markers can now be made, and they consist of wedge shape pieces of wood  $2\frac{1}{2}$ ins. long which slide along the base of the bar. To achieve this a piece of sheet metal is screwed to either side of the wood wedges and bolted through the slots. Sheet iron or brass will do very





## INTERESTING BRITISH STAMPS

**T**HIS week we want to have a look at the pages of the stamp album devoted to the stamps of Great Britain. Nearly everyone is fully aware that the first adhesive stamps were issued in 1840, and that one of them is called the 1d. black. Some are not quite sure if that was the only stamp issued, others know that at the same time there was issued the 2d. blue.

Quite a number of people are unaware of the fact that at the same time of issuing the 1d. and 2d. stamps we had postal stationery on sale. Possibly the mention of the 'Mulready' envelope or cover may remind these people of this early facility.

Again there were two, the 1d. printed in black and the 2d. printed in blue. The first illustration shows the front of one of these. As you can see it has been through the post and the cancellation mark—the Maltese Cross has been applied to cover the figure of Britannia. These Mulready envelopes, however, were by no means favourably received.



They were the subject of a considerable amount of ridicule and occasionally one can buy a number of cartoons of these envelopes. They were made of 'Dickenson Paper'; that was paper with two fine threads so impregnated that each envelope had two visible. Similar paper was used in 1847 and 1854 for the printing of the embossed 10d. and 1/- stamps.

The fourth illustration is one of the 1d. red stamps which followed the 1d. black quite quickly; the reason for the change being the difficulty of obliterating the black stamp, or rather the difficulty of seeing the obliterating mark. But if you look closely you see that there are two lines about  $\frac{1}{16}$  in. apart and between them you see the letters 'O.U.S.' and these refer to the words 'Oxford Union Society'.

Now postal orders were not issued by the post office until 1881, and until that date, sums of money could be paid by

stamps, and these were made available to University students, so that it was advisable to have some distinguishing mark in order to trace any stamps that might be stolen.

In 1867 the Government allowed firms to have their name printed on the back of stamps. Not very many firms took advantage of this method of advertising; the chief were W. H. Smith & Son, Great Eastern Railway (G.E.R.), Copestake, Moore, Crampton & Son and J. & C. Boyd & Co. (some others had their name printed over the gum).

The Government at the time of printing these names made the Oxford Union Society have their name on the back instead of the front. You should look at the back of all the red 1d. stamps that you see and keep those that have the names on the back.

Another type of advertising on the back of stamps comes to notice in 1881 when the 1d. stamp had the words 'PEARS SOAP' printed on some of them. The same words appeared on the 1d. of 1887, the vermilion stamps. That is the one of which you see the back as the third illustration. Not only



then should you look out for the small letters O.U.S. and the small names of firms but also you should look out for the letters as shown.

You must not expect to find a lot of them because it is not at all likely that you will, for although the stamps are not valuable, yet they are quite hard to find. But you do get a kind of thrill when you do find one after a very long search.

So far as sharp eyes are concerned there are quite a lot of interesting items which can be found by those who keep their eyes open. For example, the King George V 1d. stamp with the lion at the base. There are two types of this, one with the lion fully shaded and the other with very little shading on the lion.

Again, in the higher values of the King George V stamps the 2/6 and above, if you look at the background of the portrait of H.M. King George V in the 1913 issue, you will see it is composed of a great number of horizontal

lines quite close together. But if you look at the stamps of the 1934 set, then you will notice that the lines cross, so that the background is composed of a network of horizontal and diagonal lines.

If you go in for water marks, then you have a lot of work to do, for even among the low values there are numerous varieties to look for, in fact it is in the low values that you will have to search. The normal stamp has as the watermark a Crown and G V R but many of the stamps are made to go in booklets.

These you will often find with an inverted watermark. Others are made to be sold out of the machines and these will often have a watermark sideways.

Now you should look for these, and do not be put off by saying to yourself that you do not go in for watermarks; you will have to start sometime and why not now and in the stamps of your own country? They are more easy to understand than stamps of foreign countries which will have watermarks such as you do not understand.

The second illustration is one



Queen Victoria  
with back advert.

of the Channel Island bisects. On 18th February, 1941, while the Island was occupied by the Germans, the supply of the 1d. stamps gave out. In consequence permission was given for the 2d. stamp to be cut in half and each half used as a 1d. stamp.

Naturally these must be collected on the envelope and they must show some of the postmark. Otherwise one might take a 2d. stamp and cut it in half and say that it came from the Channel Islands. You see now why people are careful to collect stamps on the envelope.

There is something else interesting about this stamp. If you look very carefully at the stamp then you will see the date 18 Feb 1941. But look at the last figure, the '1'. Can you see that it is not a straight 1? It is said that the date stamp was without the figure '1' so the postal authorities took the '0' of the previous year, chipped a piece out and used the broken figure 0 as a 1.



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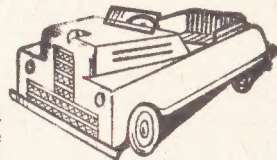
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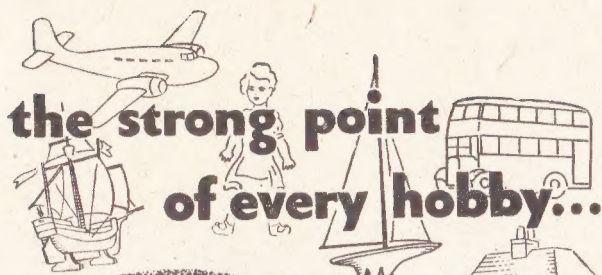
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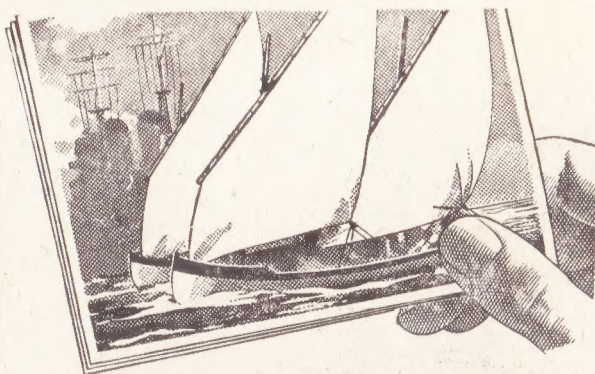
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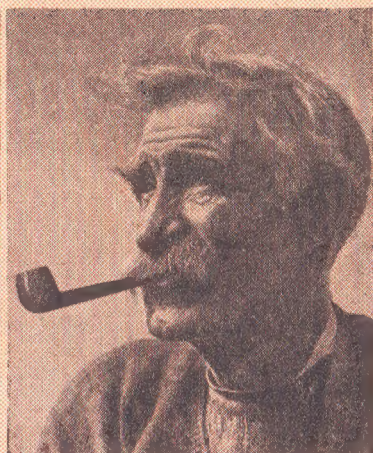
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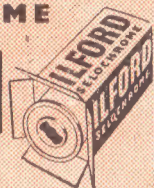
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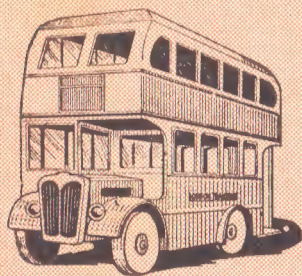
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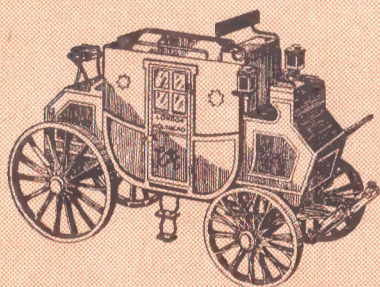
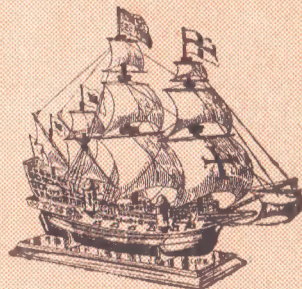
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